

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application for:  
Avaya Inc

Art Unit: 3623

First Named Inventor: Andrew D. Flockhart

Examiner: CHONG CRUZ, Nadja N.

Appln. No.: 10/673,105

Confirmation No.: 2566

Filing Date: September 26, 2003

For: CONTACT CENTER RESOURCE ALLOCATION BASED ON WORK  
BIDDING/AUCTION

\* \* \*

**APPELLANT'S BRIEF**  
**(37 CFR § 41.37)**

MS Appeal Brief - Patents  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Appellants hereby Appeal to the Board of Appeals from the Panel Decision mailed July 13, 2010 regarding the Notice of Appeal and Pre-Appeal Brief Request for Review Mailed June 30, 2010. The required fee of \$540.00 set forth in 37 C.F.R. §41.20(b)(2) is electronically submitted herewith. Although Appellants believe that no additional fees are due at this time, authorization to charge any necessary fees to Deposit Account No. 19-1970 is hereby given. A single copy of this Appeal Brief is being submitted in accordance with MPEP §1205.02.

**(I) REAL PARTY IN INTEREST.**

All rights, title, and interest in this application has been assigned to Avaya Inc. The Assignment is recorded at Reel/Frame 021156/0082.

**(II) RELATED APPEALS AND INTERFERENCES.**

There are no related appeals, interferences or judicial proceedings known to Appellant, or Appellants' legal representative, which may be related to, directly affect, be directly affected by, or have a bearing on the Board's decision in the this pending Appeal.

**(III) STATUS OF CLAIMS.**

Claims 55-76, 78-88, and 90-100 are pending.

Claims 1-54, 77, 89, and 101 are cancelled.

Claims 55, 78, and 90 are independent claims.

Claims 55-76, 78-88, and 89-100 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter of the invention.

Claims 55, 57-64, 67, 71, 74-76, 90-97, 95, and 98-100 were rejected under 35 U.S.C. §103(a) as being unpatentable over British Telecommunications, European Patent Application EP 1246097 ("BT") in view of U.S. Publication No. 2002/0131399 to Philonenko ("Philonenko") and further in view of Official Notice

**(IV) STATUS OF AMENDMENTS.**

All amendments made by Appellants have been entered by the Office. The most recent amendments made on December 1, 2009 were entered and considered by the Office in the Final Office Action dated March 31, 2010.

**(V) SUMMARY OF CLAIMED SUBJECT MATTER.**

The currently pending Independent Claims 55, 78, and 90 recited in the Claims Appendix hereto, are generally related to systems and methods for allocating work items, such as contacts, among a plurality or set of resources using competitive bidding. *See Application*, p. 2, lines 18-20. In one embodiment, items of work, such as contacts, product orders, and service requests, are presented, for competitive bidding, to resources identified as being competent to perform the work. *See Application*, p. 2, line 21 – p. 3, line 1. In a contact center architecture, the bidders may be internal or external to the contact center 6. *See Application*, p. 3, lines 1-2. When the combination of resource skills and bid price cross a determined

threshold, the work is assigned. *See Application*, p. 3, lines 4-5. Bidding thresholds may be predetermined or dynamically adjusted, ensuring that work is eventually completed. *See Application*, p. 3, lines 5-6.

During times when work may be lost or become late due to large amounts of surplus work, initial bid prices may rise to compete for the resources to resolve the surplus. *See Application*, p. 3, line 20 – p. 4, line 5. Furthermore, this methodology can provide an effective technique of load shedding and/or freeing valuable resources to handle imminent, valuable work and/or work that may be increasingly time sensitive. *Id.* This methodology is particularly advantageous when forecasting techniques are used to determine when, in the future, a resource shortage or work surplus will occur, allowing ample time for the bidding process to finish, bringing the required resources online at the appropriate time. *Id.*

The support for the claims is provided below:

Claim 55:

55. A method, comprising: *See Figs. 2-4, p. 8, line 8 – p. 19, line 8.*

(a) a contact center 6 providing a first queue 38 to service work items, wherein the work items in the first queue 38 are serviced by a first set of resources 14 comprising a plurality of members; *See Fig. 1, p. 8, lines 8-10.*

(b) a processor receiving a first work item and a second work item into the first queue 38; *See Fig. 1, p. 8, lines 8-20.*

(c) the processor monitoring the first queue 38 for a plurality of wait times associated with enqueued work items in the first queue 38, an occupancy of the first queue 38, a number of available members of the first set of resources 14 to service enqueued work items in the first queue 38, the types of enqueued contacts in the first queue 38, the priorities of enqueued contacts in the first queue 38, and anticipated workload levels for the members of the first set of resources 14; *See Fig. 1, p. 9, lines 4-18.*

(d) based on the results of the monitoring step, the processor determining that the first enqueued work item, in the first queue 38, cannot be serviced by the first set of resources 14; *See Fig. 1, p. 10, lines 3-16.*

(e) based on the results of the monitoring step, the processor determining that the first enqueued work item, in the first queue 38, must be put up for bid to meet a predetermined

business policy, objective, or goal for a type of contact corresponding to the first enqueued work item; *See Fig. 1, p. 9, line 19 – p. 14, line 4.*

(f) based on the results of the monitoring step, the processor determining that the second enqueued work item, in the first queue 38, can be serviced by the first set of resources 14 to meet a predetermined business policy, objective, or goal for a type of contact corresponding to the second enqueued work item; *See Fig. 1, p. 9, line 19 – p. 14, line 4.*

(g) the processor determining 208 the times to initiate and complete the bidding process, wherein the time is a function of an estimation of when the predetermined business policy, objective, or goal will be violated in the absence of servicing of the first work item; *See Fig. 2, p. 14, lines 5-12.*

(h) the processor requesting 212/312 a first member and a second member of a second set of resources 100 to submit a bid to service the first work item; *See Fig. 2, p. 14, lines 13-20; p. 15, line 15 – p. 16, line 6.*

(i) the processor receiving 316 a first bid from the first member and a second bid from the second member to service the first work item; *See Fig. 3, p. 16, lines 7-9.*

(j) the processor comparing 320 the first bid and second bid; *See Fig. 3, p. 16, line 10 – p. 17, line 3.*

(k) based on the comparison, the processor selecting the first bid; and *See Fig. 3, p. 17, lines 5-15.*

(l) the processor assigning 324 the first work item to the first member for servicing. *See Fig. 3, p. 17, line 16 – p. 18, line 3.*

**Claim 78:**

78. A contact center 6, comprising: *See Figs. 1-4, p. 8, line 8 – p. 19, line 8.*

a first queue 38 to hold a first work item and a second work item, wherein a first set of resources 14 services the work items in the first queue 38, wherein the first set of resources 14 comprising a plurality of members; *See Fig. 1, p. 8, lines 8-20.*

a second queue 62 to hold a work item, a second set of resources 100 to service work items in the second queue 62, the second set of resources 100 comprising a plurality of members; *See Fig. 1, p. 8, lines 8-20.*

a memory 30 operable to store one or more computer executable instructions; *See Fig. 1, p. 8, lines 8-20.*

a processor in communication with the first queue 38, the second queue 62, and the memory 30, the processor operable to execute the computer executable instructions, wherein the processor executes the computer executable instructions to execute:

a workload monitoring agent 70 operable to monitor a plurality of wait times of enqueued work items in the first queue 38, an occupancy of in the first queue 38, a number of available members of the first set of resources 14 to service enqueued work items in the first queue 38, the types of enqueued contacts in the first queue 38, the priorities of enqueued contacts in the first queue 38, and anticipated workload levels of the first set of resources 14 to service enqueued work items in the first queue 38; *See Fig. 1, p. 10, lines 3-16.*

the workload monitoring agent 70 operable to determine, based on the results of the monitoring operation, that the first work item, but not the second work item, must be put up for bid to meet a predetermined business policy, objective, or goal for a type of contact corresponding to the first work item; *See Fig. 1, p. 9, line 19 – p. 14, line 4.*

the workload monitoring agent 70 operable to configure the times to initiate and complete the bidding process, wherein the time is a function of an estimation of when the predetermined business policy, objective, or goal will be violated in the absence of servicing of the first work item; *See Fig. 2, p. 14, lines 5-12.*

the workload monitoring agent 70 operable to send the first work item to a bid item selecting agent; *See Fig. 1, p. 12, lines 10-13.*

the bid item selecting agent 74 operable to request first and second members of the second set of resources 100 to submit a bid to service the first work item; *See Fig. 2, p. 14, lines 13-20; p. 15, line 15 – p. 16, line 6.*

the bid item selecting agent 74 operable to receive a first bid from the first member and a second bid from the second member to service the first work item; *Fig. 3, p. 16, lines 7-9.*

the bid item selecting agent 74 operable to compare the first bid and second bid; *See Fig. 3, p. 16, line 10 – p. 17, line 3.*

the bid item selecting agent 74 operable to select, based on the comparing operation, the first bid; *See Fig. 3, p. 17, lines 5-15.*

the bid item selecting agent 74 operable to assign the first work item to the first member for servicing; and *See Fig. 3, p. 17, line 16 – p. 18, line 3.*

the bid item selecting agent 74 operable to queue the first work item in the second queue 62 for the first member. *See Fig. 3, p. 17, line 16 – p. 18, line 3.*

Claim 90:

90. A computer program product comprising processor executable instructions encoded on a computer readable medium, which, when executed by the processor, causes the processor to perform the following operations: *See Figs. 2-4, p. 8, line 8 – p. 19, line 8.*

receive a first work item and a second work item into a first queue 38, wherein the work items in the first queue 38 are serviced by a first set of resources 14 comprising a plurality of members; *See Fig. 1, p. 8, lines 8-20.*

monitor the first queue 38 for a plurality of wait times associated with enqueued work items in the first queue 38, an occupancy of the first queue 38, a number of available members of the first set of resources 14 to service enqueued work items in the first queue 38, the types of enqueued contacts in the first queue 38, the priorities of enqueued contacts in the first queue 38, and anticipated workload levels for the members of the first set of resources 14; *See Fig. 1, p. 9, lines 4-18.*

determine, based on the results of the monitoring operation, that the first enqueued work item, in the first queue 38, cannot be serviced by the first set of resources 14;

based on the results of the monitor step, determine that the first enqueued work item, in the first queue 38, must be put up for bid to meet a predetermined business policy, objective, or goal for a type of contact corresponding to the first enqueued work item;

determine that a second enqueued work item, in the first queue 38, can be serviced by the first set of resources 14 to meet a predetermined business policy, objective, or goal for a type of contact corresponding to the second enqueued work item; *See Fig. 1, p. 10, lines 3-16; see also Fig. 1, p. 9, line 19 – p. 14, line 4.*

configure 208 the times to initiate and complete the bidding process, wherein the time is a function of an estimation of when the predetermined business policy, objective, and/or

goal will be violated in the absence of servicing of the first work item; *See Fig. 2, p. 14, lines 5-12.*

request 212/312 a first member and a second member of the second set of resources 100 to submit a bid to service the first work item; *See Fig. 2, p. 14, lines 13-20; p. 15, line 15 – p. 16, line 6.*

receive 316 a first bid from the first member and a second bid from the second member to service the first work item; *See Fig. 3, p. 16, lines 7-9.*

compare 320 the first bid and second bid; *See Fig. 3, p. 16, line 10 – p. 17, line 3.*

select, based on the comparing operation, the first bid; and *See Fig. 3, p. 17, lines 5-15.*

assign 324 the first work item to the first member for servicing. *See Fig. 3, p. 17, line 16 – p. 18, line 3.*

Support for the dependent claims will be provided in the argument if the dependent claims are argued separately.

#### **(VI) GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL.**

1. Whether the plain meaning of the independent claims is easily understood and precludes a rejection under 35 U.S.C. §112, second paragraph.
2. Whether the combination of Philonenko and Official Notice, without teaching “first set of resources 14 comprising a plurality of members” can service a first and second work items and two members of a second set of resources bidding to address the work item, can render the claims obvious.

#### **(VII) ARGUMENTS.**

1. Whether the plain meaning of the independent claims is easily understood and precludes a rejection under 35 U.S.C. §112, second paragraph.

Claims 55-76, 78-88, and 89-100 were rejected under 35 U.S.C. §112, second paragraph as failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The Office Action states that the first bid is always selected. *See Office Action*, dated March 31, 2010, p. 3. Applicants believe the Examiner is attempting to ignore the plain meaning of the claim.

Before the selection of a bid, a comparison between at least two bids is made. The selection of one of the bids is based on the comparison. The claim element clearly states that “based on the comparison, the processor selecting the first bid.” If there were no comparison, it would be unnecessary to include any steps in the process leading to the reception of the second bid or the comparison of the second bid to the first bid. In essence, the claim would be neutered of its meaning. The first bid is selected due to the comparison of the first and second bids. The second bid could be selected if the comparison is different. Thus, the comparison of bids and the selection of the first bid based on the comparison have a clear meaning.

If it is believed that a claim amendment could overcome this rejection while maintaining the comparison step, Applicants are open to such a change. However, any such change is believed unneeded at this time.

2. Whether the combination of Philonenko and Official Notice, without teaching “first set of resources 14 comprising a plurality of members” can service a first and second work items and two members of a second set of resources bidding to address the work item, can render the claims obvious.

Applicants respectfully submit the Office Action fails to meet the *prima facie* requirements to support a valid rejection under 35 U.S.C. §§ 102 or 103. More specifically, when determining whether a claim is obvious under 35 U.S.C. § 103, an examiner must make “a searching comparison of the claimed invention – *including all its limitations* – with the teaching of the prior art.” *In re Ochiai*, 71 F.3d 1565, 1572 (Fed. Cir. 1995) (emphasis added). Thus, “obviousness requires a suggestion of all limitations in a claim.” *CFMT, Inc. v. Yieldup Intern. Corp.*, 349 F.3d 1333, 1342 (Fed. Cir. 2003) (citing *In re Royka*, 490 F.2d 981, 985 (CCPA 1974) (holding that to establish *prima facie* obviousness of a claimed invention, all the claim features must be taught or suggested by the prior art)). Moreover, as the Supreme Court recently stated, “there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *KSR Int’l v. Teleflex Inc.*, 127 S. Ct. 1727, 1741 (2007) (quoting *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)). Applicants respectfully submit that one or more features in the independent and dependent claims are not taught or suggested, either expressly or inherently, in any of the cited prior art references. Accordingly, for at least the reasons set forth below, Applicants submit that the rejections of the claims under 35 U.S.C. § 103 should be reconsidered and withdrawn.



Claim 55:

Claim 55 includes elements not described in the cited art. Namely, the elements highlighted below are not taught by the cited art:

55. A method, comprising:

(a) a contact center providing *a first queue to service work items, wherein the work items in the first queue are serviced by a first set of resources 14 comprising a plurality of members;*

(b) a processor receiving a first work item and a second work item into the first queue 38;

(c) *the processor monitoring the first queue for a plurality of wait times associated with enqueued work items in the first queue, an occupancy of the first queue, a number of available members of the first set of resources 14 to service enqueued work items in the first queue, the types of enqueued contacts in the first queue, the priorities of enqueued contacts in the first queue, and anticipated workload levels for the members of the first set of resources;*

(d) *based on the results of the monitoring step, the processor determining that the first enqueued work item, in the first queue, cannot be serviced by the first set of resources;*

(e) *based on the results of the monitoring step, the processor determining that the first enqueued work item, in the first queue, must be put up for bid to meet a predetermined business policy, objective, or goal for a type of contact corresponding to the first enqueued work item;*

(f) *based on the results of the monitoring step, the processor determining that the second enqueued work item, in the first queue, can be serviced by the first set of resources to meet a predetermined business policy, objective, or goal for a type of contact corresponding to the second enqueued work item;*

(g) *the processor determining the times to initiate and complete the bidding process, wherein the time is a function of an estimation of when the*

*predetermined business policy, objective, or goal will be violated in the absence of servicing of the first work item;*

- (h) the processor requesting *a first member and a second member of a second set of resources* to submit a bid to service the first work item;
- (i) the processor receiving a first bid from the first member and a second bid from the second member to service the first work item;
- (j) the processor comparing the first bid and second bid;
- (k) based on the comparison, the processor selecting the first bid; and
- (l) the processor assigning the first work item to the first member for servicing.

The embodiments presented in the present application are generally directed to a method for allocating work items (e.g., contacts to a call center or customer service requests), among a plurality of sets of resources using competitive bidding. The work may be routed to differing bidding and nonbidding sets of resources depending on the value of the work item and whether or not a work surplus exists. Typically, work is not presented to external resources during times when there is no work surplus. When a work surplus exists, work with low value is generally presented to internal bidders with lower skill sets and/or bid out to external resources, either singularly or in blocks of work. By identifying groups of less profitable or valuable work that may be better off presented to external or outside bidders and groups of highly valuable work that can be presented to internal or inside bidders, the overall performance of an enterprise can be heightened.

The Philonenko reference is generally directed to queuing and distributing events within a call center. See *Philonenko*, ¶¶ [0021]-[0031]. In particular, Philonenko discusses routing rules that distribute events amount different agents. See *Philonenko*, ¶¶ [0041]-[0043]. However, there is absolutely no teaching, suggestion or description in Philonenko of two sets of resources. The claims define a resource as having a plurality of members. In other words, the resource can be a set of agents where the set includes two or more agents. Philonenko describes a single set of resources. Indeed, the description of Fig. 3 in Philonenko states that there is a single “agent group 71.” See *Philonenko*, ¶ [0041]. Due to this missing description, Philonenko cannot describe elements of the claims that will be described hereinafter.

BT discusses a work allocation system. *See BT*, ¶ [0001]. In particular, the work allocation system includes a bidding system that distributes work between work groups. *See BT*, ¶ [0014]. The work groups interface with a mediator that bids for the work group. *Id.* However, BT does not overcome the deficiencies in Philonenko.

The differences between the claim and the cited art are reviewed in greater detail below:

**Missing Limitation: “the processor monitoring the first queue for a plurality of wait times associated with enqueued work items in the first queue, an occupancy of the first queue, a number of available members of the first set of resources to service enqueued work items in the first queue, the types of enqueued contacts in the first queue, the priorities of enqueued contacts in the first queue, and anticipated workload levels for the members of the first set of resources”**

Claim 55 requires that the processor monitor several data items:

1. a plurality of wait times associated with enqueued work items in the first queue,
2. an occupancy of the first queue,
3. a number of available members of the first set of resources to service enqueued work items in the first queue,
4. the types of enqueued contacts in the first queue,
5. the priorities of enqueued contacts in the first queue, and
6. anticipated workload levels for the members of the first set of resources.

The Examiner cites a portion of Philonenko to show this element of the claim. *See Office Action*, dated March 31, 2010, pp. 4-5 and 9. The section of Philonenko cited by the Examiner states:

Referring now to FIG. 1, a call distribution scheme as illustrated with reference to FIG. 2 may be accomplished by a CTI application executed on processor 23 relative to arriving calls at switch 21. The CTI application monitors switch 21 for incoming calls to a routing or call-distribution point. The status of telephones at agent stations is also monitored, so the application has access to real-time information as to which logged-in agents are busy on a call and which are not. The application operates to command switch 21 to distribute calls on a FIFO basis to logged-in available agents.

*Philonenko*, ¶ [0039].

The Examiner is required to provide a reference that describes all six items listed above. Philonenko only describes “real-time information as to which logged-in agents are busy on a call and which are not.” *Id.* Philonenko may describe available members of a set of resources. However, there is absolutely no mention of items 1, 2, 4, 5, and 6 listed above. As such, the

Office Action has failed to provide a reference that proves a *prima facie* case of obviousness. For at least this reason, claim 55 is allowable over the cited art.

**Missing Limitation: “based on the results of the monitoring step, the processor determining that the first enqueued work item, in the first queue, cannot be serviced by the first set of resources . . . determining that the first enqueued work item, in the first queue, must be put up for bid to meet a predetermined business policy, objective, or goal for a type of contact corresponding to the first enqueued work item”**

Claim 55 requires that the processor determine that the enqueued item cannot be serviced by a first set of resources and should be subject of a bidding process. The Examiner cites BT to show this element of the claims. See *Office Action*, dated March 31, 2010, pp. 5 and 10. The section of BT cited by the Examiner is as follows:

Figure 4 follows the allocation of a work item from its generation through to its completion. The work item is generated by a customer 32 or the environment 33 (step s1) and acquired by the work item handler (step s2). The work item handler passes the item to the OSS agent 31 (step s3). The OSS agent 31 prices the work item using a cost function that reflects its business priorities, for example the urgency of the work with respect to penalty clauses, or the value of the customer according to some model (step s4). For example, the OSS agent 31 will price urgent work low, so that it is easier for the mediator agents 28, 29 to buy it. The OSS agent 31 then offers the work item at the determined price to the mediator agents 28, 29 for each of the workgroups (step s5). The mediator agent 28,29 for each workgroup receives the offer (step s6) and uses a cost function that reflects its local business priorities, and the preferences of its workgroup, to determine a price at which it is prepared to bid for the work (step s7). For example, the mediator agent makes a prediction as to whether it will be able to allocate the work to the workers based on its knowledge of the work item being offered as against the workers' work preferences. The prediction is based on the output from a workgroup classifier algorithm, which will be explained in detail below. At the same time, the mediator agent 28, 29 calculates whether the allocation of the work will meet its local business priorities, for example targets for total work time for its workgroup and therefore whether it should make a bid at all (step s8). As a result of the calculation, the mediator agent 28, 29 for the workgroup may decide not to bid for the work (step s8), but instead waits for the next offer on the next available work item (step s6). If the mediator agent 28, 29 decides that its local business priorities will be met, it makes a bid for the work item (step s9). The OSS agent 31 receives bids from all workgroups and determines how many bids it has received for the work item (step s10). If only one mediator agent makes a bid (step s11) that bid is accepted by the OSS agent 31 (step s12). If more than one mediator agent makes a bid (step s11), the OSS agent 31 accepts the bid at the highest price (step s13). For example, the OSS agent 31 provides a work item with a relatively high price P, indicating that the work item is categorised as desirable. The mediator agent 28 for the first workgroup 20 determines that it can allocate the work item to its workers, but its

workgroup is relatively busy and cannot do the work urgently. It is therefore prepared to offer P for the work item. The mediator agent 29 for the second workgroup 21 also determines that it can allocate the work item to its workers, who are not very busy, so that the work item will assist the workgroup in reaching its targets. The second mediator agent 29 is therefore prepared to offer P+10 for the work item. In this case, the OSS agent 31 accepts the offer of P+10 from the second mediator agent 29 and allocates the work item to it.

BT, ¶ [0014].

While BT and the present application present bidding processes, the bidding process claimed is very different from that described in BT. First, the claim requires that a determination be made as to whether a bidding process should be completed for a work item. BT does not contain such a determination. The Examiner points to the phrase “OSS agent 31 prices the work item using a cost function that reflects its business priorities, for example the urgency of the work with respect to penalty clauses, or the value of the customer according to some model (step s4).” *Id.* However, the OSS agent 31 never makes a determination to start a bidding process. Rather, the OSS agent, in BT, simply prices the work item for a bidding process. As such, BT fails to show this element of the claims. Thus, the Office Action has failed to state a *prima facie* case of obviousness. For at least this reason, claim 55 is allowable over the cited art.

**Missing Limitation: “based on the results of the monitoring step, the processor determining that the second enqueued work item, in the first queue, can be serviced by the first set of resources to meet a predetermined business policy, objective, or goal for a type of contact corresponding to the second enqueued work item”**

Claim 55 requires that the processor determine that a second enqueued item can be serviced by a first set of resources. Thus, this determination necessarily implies that the second enqueued item is not determined to be subject of a bidding process. Regardless, a determination is still required. Without determining that a work item should be subject to a bidding process, the references also cannot show a work item should not be subject to a bidding process. Thus, the references also fail to show this determination step. Thus, the Office Action has failed to state a *prima facie* case of obviousness. For at least this reason, claim 55 is allowable over the cited art.

**Missing Limitation: “the processor determining the times to initiate and complete the bidding process, wherein the time is a function of an estimation of when the predetermined business policy, objective, or goal will be violated in the absence of servicing of the first work item”**

Claim 55 requires that the processor determine a time for the bidding process. The Examiner cites BT to show this element of the claims. *See Office Action*, dated March 31, 2010, p. 6 and 10-11. The section of BT cited by the Examiner is as shown above.

The Examiner specifically mentions “OSS agent 31 prices the work item using a cost function that reflects its business priorities, for example the urgency of the work with respect to penalty clauses, or the value of the customer according to some model (step s4).” *BT*, ¶ [0014]. The Examiner goes on to state that the OSS agent, by pricing “urgent work low, so it is easier for the mediator agents 28, 29 to buy it,” shows that the OSS agent determines a start and end time for a bidding process. *BT*, ¶ [0014].

Applicants disagree. By manipulating the price, the OSS agent may affect how fast a bid is received. However, there are no limits set for the bidding process. In other words, the OSS agent does not determine that bids will be received from time 0 (i.e., the time to initiate the bidding process) to time x (i.e., the time to complete the bidding process), as claimed. The OSS agent of BT fails to complete this function. As such, the Examiner has failed to state a *prima facie* case of obviousness. For at least this reason, claim 55 is allowable over the cited art.

**Missing Limitation: “first queue . . . first set of resources . . . second queue . . . second set of resources”**

Claim 55 requires that there are a first and second queue and a first set of resources and a second set of resources. Further, a first member and a second member of the second set of resources provide bids. The Examiner cites BT to show these elements of the claim. *See Office Action*, dated March 31, 2010, p. 6 and 10-11. The Examiner points to the mediator agent 29 as the second set of resources. Unfortunately, the Examiner’s logic does match the claim requirements.

The mediator agent 29 sends one bid. *See BT*, ¶ [0014] (“If the mediator agent 28, 29 decides that its local business priorities will be met, it makes a bid for the work item (step s9).”). To compare this with the claim element, the mediator agent 29 may be equivalent to a member of a resource group because members send bids. Importantly, a workgroup member cannot be a member because it fails to send bids as required by members of the resource sets in the claim. Further, mediator agent 28 can be similar to the second member of the resource group because it also sends a bid. Thus, mediator agents 28 and 29 would be part of the same

resource group. As such, BT only describes a single resource group. BT does not describe a first set of resources and then a second set of resources, each with two or more members. As such, the Examiner has failed to state a *prima facie* case of obviousness. For at least this reason, claim 55 is allowable over the cited art.

Claims 56-77:

Claims 56-77 each depend, either directly or indirectly, from allowable independent claim 55. If an independent claim is novel under 35 U.S.C. 102, then any claim depending therefrom is also novel. *In re Fine*, 837 F.2d 1071, 1076 (Fed. Cir. 1988). Therefore, claims 56-77 are also allowable over the cited art due, at least in part, to this dependence on an allowable base claim.

Claim 78

Claim 78 includes the same or similar limitations to allowable claim 55. Indeed, the Examiner acknowledges the similarity. See *Office Action*, dated March 31, 2010, p. 23. Thus, for similar reasons as claim 55, claim 78 is also allowable over the cited art.

Claims 79-89:

Claims 79-89 each depend, either directly or indirectly, from allowable independent claim 78. If an independent claim is novel under 35 U.S.C. 102, then any claim depending therefrom is also novel. *In re Fine*, 837 F.2d 1071, 1076 (Fed. Cir. 1988). Therefore, claims 79-89 are also allowable over the cited art due, at least in part, to this dependence on an allowable base claim.

Claim 90

Claim 90 includes the same or similar limitations to allowable claim 55. Indeed, the Examiner acknowledges the similarity. See *Office Action*, dated March 31, 2010, p. 19. Thus, for similar reasons as claim 55, claim 90 is also allowable over the cited art.

Claims 91-100:

Claims 91-100 each depend, either directly or indirectly, from allowable independent claim 90. If an independent claim is novel under 35 U.S.C. 102, then any claim depending therefrom is also novel. *In re Fine*, 837 F.2d 1071, 1076 (Fed. Cir. 1988). Therefore, claims 91-100 are also allowable over the cited art due, at least in part, to this dependence on an allowable base claim.

**CONCLUSION**


In view of the foregoing, Applicants believe all claims now pending in this Application are in a condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested. Applicants do not acquiesce to any objection, rejection, or argument not specifically addressed herein. Rather, the Applicants believe the amendments and arguments contained herein overcome all objections, rejections, or arguments.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at (303) 863-2987.

Respectfully submitted,

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**(VIII) CLAIMS APPENDIX.**

1-54. (Canceled)

55. A method, comprising:

- (m) a contact center 6 providing a first queue 38 to service work items, wherein the work items in the first queue 38 are serviced by a first set of resources 14 comprising a plurality of members;
- (n) a processor receiving a first work item and a second work item into the first queue 38;
- (o) the processor monitoring the first queue 38 for a plurality of wait times associated with enqueued work items in the first queue 38, an occupancy of the first queue 38, a number of available members of the first set of resources 14 to service enqueued work items in the first queue 38, the types of enqueued contacts in the first queue 38, the priorities of enqueued contacts in the first queue 38, and anticipated workload levels for the members of the first set of resources 14;
- (p) based on the results of the monitoring step, the processor determining that the first enqueued work item, in the first queue 38, cannot be serviced by the first set of resources 14;
- (q) based on the results of the monitoring step, the processor determining that the first enqueued work item, in the first queue 38, must be put up for bid to meet a predetermined business policy, objective, or goal for a type of contact corresponding to the first enqueued work item;
- (r) based on the results of the monitoring step, the processor determining that the second enqueued work item, in the first queue 38, can be serviced by the first set of resources 14 to meet a predetermined business policy, objective, or goal for a type of contact corresponding to the second enqueued work item;
- (s) the processor determining the times to initiate and complete the bidding process, wherein the time is a function of an estimation of when the predetermined business policy, objective, or goal will be violated in the absence of servicing of the first work item;
- (t) the processor requesting a first member and a second member of a second set of resources 100 to submit a bid to service the first work item;

(u) the processor receiving a first bid from the first member and a second bid from the second member to service the first work item;

(v) the processor comparing the first bid and second bid;

(w) based on the comparison, the processor selecting the first bid; and

(x) the processor assigning the first work item to the first member for servicing.

56. The method of claim 55, wherein the first set of resources 14 comprises a plurality of resources internal to a contact center 6, wherein the second set of resources 100 comprises a plurality of resources external to the contact center 6, wherein the work item is a contact from a customer, and wherein the first work item is placed into a second queue 62 of multiple work items for the second set of resources 100.

57. The method of claim 55, wherein bids are requested only during a first operational mode in which bidding is performed and not in a second operational mode in which bidding is not performed, the first and second operational modes are discrete from each other.

58. The method of claim 55, wherein the monitoring step (c) and determining step (d) comprise the substeps:

the processor monitoring at least the first queue 38 of work items, the first queue 38 of work items corresponding to a first set of internal resources for servicing work items in the at least one queue; and

the processor determining when a predetermined workload level exists in the first queue 38.

59. The method of claim 58, wherein the predetermined workload level exists when there is a likelihood that a service goal for at least one work item in the first queue 38 will not be satisfied.

60. The method of claim 59, wherein the predetermined workload level exists when a queue position in the first queue 38 is less than a number of work items ahead of the queue position in the first queue 38.

61. The method of claim 55, further comprising:  
determining a number and identities of work items to be presented for bidding to the second set of resources 100.

62. The method of claim 55, wherein the selecting step (k) comprises:  
comparing the received bids with a maximum acceptable bid.

63. The method of claim 55, wherein the selecting step (k) comprises:  
determining, for each bidding resource in the second set of resources 100, a composite value reflecting a plurality of a work item value, a resource value, and a bid; and  
comparing the determined composite values to select a member from the second set of resources 100 to service the first work item.

64. The method of claim 55, further comprising after the receiving step (f):  
determining whether or not a workload level for the contact center 6 requires the first work item that is the subject of the received bids to be serviced by a member in the second set of resources 100.

65. The method of claim 55, further comprising after the receiving step (h):  
displaying at least one of the first and second bid and/or information associated with the at least one of the first and second bids to at least one member in the second set of resources 100;  
and

receiving, from the at least one member, an additional bid after the displaying step.

66. The method of claim 65, wherein at least some of the resources are human agents, wherein members of the first set of resources 14 are employees of a contact center 6, wherein the members of the first set of resources 14 are subscribers to an enterprise network defined by the contact center 6, wherein the members of the second set of resources 100 are not employees of the contact center 6, wherein the members of the second set of resources 100 are not subscribers to an enterprise network defined by the contact center 6, and wherein steps (g)-(l) are performed when the first set of resources 14 is unable to service the contact as required by contact center 6 policies, objectives, and/or goals, the first set of resources 14 being employees of the contact center 6 and subscribers of the enterprise network.

67. The method of claim 55, wherein the bid is at least one of a monetary service fee, a service time, an opportunity cost to the contact center 6 for servicing the work item, and an overhead cost to the contact center 6 for servicing the work item.

68. The method of claim 55, wherein a plurality of work items are put out for bid and further comprising:

dynamically varying a bidding time for each of the plurality of work items.

69. The method of claim 55, wherein at least one of steps (g) and (h) comprise:

determining a required queue position for each work item in the first queue 38, wherein the required queue position indicates that a service-time goal of the respective work item<sub>i</sub> is met only when the respective work item<sub>i</sub> is serviced by a one of the next " $N_i$ " resources in the first set of resources 14 to become available to service work items in the first queue 38;

generating a representation of a queue, the representation reflecting a required queue positions for the work items in the first queue 38; and

for each queue position " $i$ " in the queue representation, summing the work items in queue positions 1 to  $N_i$ ; and

for each queue position " $N_i$ " when the sum is greater than  $N_i$ , performing steps (h) – l)

70. The method of claim 69, wherein a number by which a sum exceeds  $N_i$  is a number of work items to be put out for bid and an initial queue position<sub>i</sub> in the representation of a queue at where the sum is greater than  $N_i$ , is used to determine a time available for the bidding process to be completed.

71. The method of claim 55, wherein a number of work items to be put out for bid is a function of anticipated or expected future work item surplus levels and wherein identities of which work items are to be put out for bid is a function of at least one of relative values of work items, skill levels of available resources in the second set of resources 100, and types of work items.

72. The method of claim 55, wherein steps (h) and (i) comprise:  
publishing on work stations of the first member and the second member of the second set of resources 100 a plurality of a description of the first work item, an acceptable bid threshold, a closure time for bidding, an indication whether bids may be changed by a bidder, and how many times a bid may be changed by a bidder;

when a bid is received, providing the bidder with an indication whether or not his bid is less than, greater than, or equal to an acceptable bid threshold.

73. The method of claim 72, wherein the acceptable bid threshold is a function of one or more of a value of the work item that is the subject of the bid, a cost for a member of the second set of resources 100 to service the work item that is the subject of the bid, and an amount of surplus work items to be serviced.

74. The method of claim 55, wherein step (k) comprises the sub-steps:

(K1) calculating, respectively, first and second composite values for the first and second members based on a plurality of a value of the first work item, the respective bid, and a skill level, experience level, and/or value of the member; and

(K2) comparing the first and second composite values.

75. The method of claim 55, wherein steps (k) and (l) are performed by mapping a resource value of the first member against a resource value range, each resource value range having a different acceptable bid threshold.

76. The method of claim 55, wherein steps (k) and (l) are performed by mapping a work item value of the first work item against a work item value range, each work item value range having a different acceptable bid threshold.

77. Cancelled

78. A contact center 6, comprising:

a first queue 38 to hold a first work item and a second work item, wherein a first set of resources 14 services the work items in the first queue 38, wherein the first set of resources 14 comprising a plurality of members;

a second queue 62 to hold a work item, a second set of resources 100 to service work items in the second queue 62, the second set of resources 100 comprising a plurality of members;

a memory 30 operable to store one or more computer executable instructions;

a processor in communication with the first queue 38, the second queue 62, and the memory 30, the processor operable to execute the computer executable instructions, wherein the processor executes the computer executable instructions to execute:

a workload monitoring agent operable to monitor a plurality of wait times of enqueued work items in the first queue 38, an occupancy of in the first queue 38, a number of available members of the first set of resources 14 to service enqueued work items in the first queue 38, the types of enqueued contacts in the first queue 38, the priorities of enqueued contacts in the first queue 38, and anticipated workload levels of the first set of resources 14 to service enqueued work items in the first queue 38;

the workload monitoring agent operable to determine, based on the results of the monitoring operation, that the first work item, but not the second work item, must be put up for bid to meet a predetermined business policy, objective, or goal for a type of contact corresponding to the first work item;

the workload monitoring agent operable to configure the times to initiate and complete the bidding process, wherein the time is a function of an estimation of when the predetermined business policy, objective, or goal will be violated in the absence of servicing of the first work item;

the workload monitoring agent operable to send the first work item to a bid item selecting agent;

the bid item selecting agent operable to request first and second members of the second set of resources 100 to submit a bid to service the first work item;

the bid item selecting agent operable to receive a first bid from the first member and a second bid from the second member to service the first work item;

the bid item selecting agent operable to compare the first bid and second bid;

the bid item selecting agent operable to select, based on the comparing operation, the first bid;

the bid item selecting agent operable to assign the first work item to the first member for servicing; and

the bid item selecting agent operable to queue the first work item in the second queue 62 for the first member.

79. The contact center 6 of claim 78, wherein the first set of resources 14 comprises a plurality of resources internal to a contact center 6, wherein the second set of resources 100 comprises a plurality of resources external to the contact center 6, and wherein the work item is a contact from a customer.

80. The contact center 6 of claim 78, wherein at least some of the resources are human agents, wherein members of the first set of resources 14 are employees of a contact center 6, wherein the members of the first set of resources 14 are subscribers to an enterprise network defined by the contact center 6, wherein the members of the second set of resources 100 are not employees of the contact center 6, wherein the members of the second set of resources 100 are not subscribers to an enterprise network defined by the contact center 6, and wherein the configure, request, receive, compare, and select operations are performed when a different set of resources is unable to service the contact as required by contact center 6 policies, objectives, or goals, the different set of resources being employees of the contact center 6 and subscribers of the enterprise network.

81. The contact center 6 of claim 78, wherein the workload monitoring agent is further operable to:

determine a required queue position for each work item in a selected queue, wherein the required queue position indicates that a service-time goal of the respective work item<sub>i</sub> is met only when the respective work item<sub>i</sub> is serviced by a one of the next " $N_i$ " resources in the first set of resources 14 to become available to service work items in the selected queue;

generate a representation of a queue, the representation reflecting the required queue positions for the work items in the selected queue; and

for each queue position " $N_i$ " in the queue representation, sum the work items in queue positions 1 to  $N_i$ ; and

for each queue position " $i$ ", when the sum is greater than  $N_i$ , perform the configure, request, receive, compare, and select operations.

82. The contact center 6 of claim 81, wherein a number by which a sum exceeds  $N_i$  is a number of work items to be put out for bid and an initial queue position<sub>i</sub> in the representation of a queue at where the sum is greater than  $N_i$ , is used to determine a time available for the bidding process to be completed.

83. The contact center 6 of claim 78, wherein a number of work items to be put out for bid is a function of anticipated or expected future work item surplus levels and wherein identities of which work items are to be put out for bid is a function of at least one of relative values of work items, skill levels of available resources in the second set of resources 100, and types of work items.

84. The contact center 6 of claim 78, wherein the bid item selecting agent is further operable to:

publish on work stations of first and second members of the second set of resources 100 a plurality of a description of the first work item, an acceptable bid threshold, a closure time for bidding, an indication whether bids may be changed by a bidder, and how many times a bid may be changed by a bidder;

when a bid is received, provide the bidder with an indication whether or not his bid is less than, greater than or equal to an acceptable bid threshold.

85. The contact center 6 of claim 84, wherein the acceptable bid threshold is a function of one or more of a value of the work item that is the subject of the bid, a cost for a member of the first set of resources 14 to service the work item that is the subject of the bid, and an amount of surplus work items to be serviced.

86. The contact center 6 of claim 78, wherein the bid item selecting agent is further operable to:

calculate, respectively, first and second composite values for the first and second members based on a plurality of a value of the first work item, the respective bid, and a skill level, experience level, and/or value of the member; and

compare the first and second composite values.

87. The contact center 6 of claim 78, wherein the bid item selecting agent is further operable to map a resource value of the first member against a resource value range, each resource value range having a different acceptable bid threshold.

88. The contact center 6 of claim 78, wherein the bid item selecting agent is further operable to map a work item value of the first work item against a work item value range, each work item value range having a different acceptable bid threshold.

89. Cancelled

90. A computer program product comprising processor executable instructions encoded on a computer readable medium, which, when executed by the processor, causes the processor to perform the following operations:

receive a first work item and a second work item into a first queue 38, wherein the work items in the first queue 38 are serviced by a first set of resources 14 comprising a plurality of members;

monitor the first queue 38 for a plurality of wait times associated with enqueued work items in the first queue 38, an occupancy of the first queue 38, a number of available members of the first set of resources 14 to service enqueued work items in the first queue 38, the types of enqueued contacts in the first queue 38, the priorities of enqueued contacts in the first queue 38, and anticipated workload levels for the members of the first set of resources 14;

determine, based on the results of the monitoring operation, that the first enqueued work item, in the first queue 38, cannot be serviced by the first set of resources 14;;



based on the results of the monitor step, determine that the first enqueued work item, in the first queue 38, must be put up for bid to meet a predetermined business policy, objective, or goal for a type of contact corresponding to the first enqueued work item;

determine that a second enqueued work item, in the first queue 38, can be serviced by the first set of resources 14 to meet a predetermined business policy, objective, or goal for a type of contact corresponding to the second enqueued work item;

configure the times to initiate and complete the bidding process, wherein the time is a function of an estimation of when the predetermined business policy, objective, and/or goal will be violated in the absence of servicing of the first work item;

request a first member and a second member of the second set of resources 100 to submit a bid to service the first work item;

receive a first bid from the first member and a second bid from the second member to service the first work item;

compare the first bid and second bid;

select, based on the comparing operation, the first bid; and

assign the first work item to the first member for servicing.

91. The product of claim 90, wherein the first set of resources 14 comprises a plurality of resources internal to a contact center 6, wherein the second set of resources 100 comprises a plurality of resources external to the contact center 6, and wherein the work item is a contact from a customer.

92. The product of claim 90, wherein at least some of the resources are human agents, wherein the members of the first set of resources 14 are employees of a contact center 6, wherein the members of the first set of resources 14 are subscribers to an enterprise network defined by the contact center 6, wherein the members of the second set of resources 100 are not employees of the contact center 6, wherein the members of the second set of resources 100 are not subscribers to an enterprise network defined by the contact center 6, and wherein the configure, request, receive, compare, and select operations are performed when a different set of resources is unable to service the contact as required by contact center 6 policies, objectives, or goals, the different set of resources being employees of the contact center 6 and subscribers of the enterprise network.

93. The product of claim 90, wherein at least one of the compare and select operations comprise the sub-operations:

determine a required queue position for each work item in a selected queue, wherein the required queue position indicates that a service-time goal of the respective work item<sub>i</sub> is met only when the respective work item<sub>i</sub> is serviced by a one of the next "N<sub>i</sub>" resources in the first set of resources 14 to become available to service work items in the selected queue;

generate a representation of a queue, the representation reflecting the required queue positions for the work items in the selected queue; and

for each queue position "N<sub>i</sub>" in the queue representation, sum the work items in queue positions 1 to N<sub>i</sub>; and for each queue position "i", when the sum is greater than N<sub>i</sub>, perform the configure, request, receive, compare, and select operations.

94. The product of claim 93, wherein a number by which a sum exceeds N<sub>i</sub> is a number of work items to be put out for bid and an initial queue position<sub>i</sub> in the representation of a queue at where the sum is greater than N<sub>i</sub>, is used to determine a time available for the bidding process to be completed.

95. The product of claim 90, wherein a number of work items to be put out for bid is a function of anticipated or expected future work item surplus levels and wherein identities of which work items are to be put out for bid is a function of at least one of relative values of work items, skill levels of available resources in the second set of resources 100, and types of work items.

96. The product of claim 90, wherein the compare and select operations comprise:  
publish on work stations of first and second members of the second set of resources 100 a plurality of a description of the first work item, an acceptable bid threshold, a closure time for bidding, an indication whether bids may be changed by a bidder, and how many times a bid may be changed by a bidder;

when a bid is received, provide the bidder with an indication whether or not his bid is less than, greater than or equal to an acceptable bid threshold.

97. The product of claim 96, wherein the acceptable bid threshold is a function of one or more of a value of the work item that is the subject of the bid, a cost for a member of the

first set of resources 14 to service the work item that is the subject of the bid, and an amount of surplus work items to be serviced.

98. The product of claim 90, wherein the compare operation comprises the sub-operations:

calculate, respectively, first and second composite values for the first and second members based on a plurality of a value of the first work item, the respective bid, and a skill level, experience level, and/or value of the member; and

compare the first and second composite values.

99. The product of claim 90, wherein the compare and select operations are performed by mapping a resource value of the first member against a resource value range, each resource value range having a different acceptable bid threshold.

100. The product of claim 90, wherein the compare and select operations are performed by mapping a work item value of the first work item against a work item value range, each work item value range having a different acceptable bid threshold.

101. Cancelled

**(IX) EVIDENCE APPENDIX.**

None.